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Protection and Industrial Structure in India

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Making India's industrial incentive scheme transparent requires making tariffs uniformly low and eliminating all quantitative restrictions on imports. Tariffs must be used only to provide protection and incentive signals, not to raise revenues.

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This paper — a joint product of the Southern Africa Department and of the Industry and Energy Operations Division, Middle East and North Africa Country Department I — is part of a larger study of India's trade regime undertaken by the South Asia Country Department III. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rose Matenda, room J11-217, extension 35055 (October 1992, 51 pages).

Effective protection rates in India are so high and vary so greatly that anything short of low uniform tariffs and the complete elimination of quantitative restrictions would not make the industrial incentive scheme transparent, as it needs to be.

Aksoy and Ettori produce evidence to show that there is ample scope for reducing tariffs and quantitative restrictions and that most industries could coexist with much less protection than they now have.

By eliminating all surcharges on inputs (tariffs on imported inputs, price differentials on local inputs, nondeductible excise taxes) — even without correcting for the effects of high investment costs — most projects (including import-substitution projects) would earn from current international prices a positive profit margin on their marginal as well as full production costs. The proportion of projects with a positive profit margin would triple, from 20 percent to 63 percent.

Among import-substituting projects that are not candidates for export under the present trade regime, under the proposed new regime half would be candidates for export if they would procure their inputs at international prices.

Lower tariffs would fulfill their primary purpose more effectively: providing protection and incentive signals. The function of generating public revenues, another critical issue in India, should be fulfilled not through tariffs but through more efficient and protection-neutral instruments — in particular, direct taxation (income tax) and nontariff indirect taxation (neutral excise taxes, MODVAT, and preferably the value-added tax on consumption).

PROTECTION AND INDUSTRIAL STRUCTURE IN INDIA

BY

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Table of Contents

Incentives and Protection in Indian Industry		1
A.	Nominal and Effective Protection in Manufacturing	2
B.	Simulating Free Trade	9
C.	Developments in Selected Subsectors	14
	a) Iron, Steel, and Ferro-Alloys	18
	b) Petrochemical Industry	23
	c) Capital Goods Industries	31
D.	Conclusions	48
References		51

INCENTIVES AND PROTECTION IN INDIAN INDUSTRY

1. India's industrial policy environment has gone through major cycles of tightening and relaxation over the last few decades. These policy shifts have been caused primarily by balance of payments crises. The adjustments to the BOP crises have to a large extent been made (a) on the import side by increasing tariffs and restricting imports via various QRs and (b) by increasing regulations on industrial investment, output adjustment and placing other restrictions on the ability of firms to adjust to changing economic conditions. The policy apparatus that has been created as a result of these crises have not been dismantled when the policy regimes have been relaxed. Instead, ad hoc adjustments and exemptions have been introduced as special schemes to ease the restrictions and resulting bottlenecks. As a result, a very complicated policy environment has been created with overlapping layers of control, riddled with special exemptions and schemes. In the 1980s significant reforms were implemented in areas of industrial regulation and export policies that eased the magnitude of bottlenecks that firms and exporters face. However, the reforms in the import regime have been more modest and the complex and restrictive structure of the regime has continued to date.

2. Net effect of the import regime has been a gradual shrinkage of international trade as a proportion of domestic output (Aksoy and Tang, 1991). High protection given by QRs and increasing tariffs have led to indiscriminate import substitution and very high product prices in India compared to international prices. On the other hand, specific exemptions, administered pricing of key inputs and uneven domestic competition have led to certain product groups enjoying very high effective protection while other product groups having low or negative effective protection. Furthermore, very high tariffs and taxes levied on investment goods to protect the domestic producers have eroded the competitiveness of even otherwise efficient industries and require modifications in the interpretation of effective rates of protection.

3. This paper tries to estimate the structure of incentives and effective protection and its implication for Indian industry. First, the rates of nominal and effective protection collected from various studies are analyzed. These include effective protection estimates made by Pursell (1988), various

BICP reports and other firm level information collected by the World Bank for its subsector studies and projects. Second, the effect of moving to a free-trade environment on different subsectors is analyzed with the use of a multi-sector computable general equilibrium model. The firm level effective protection estimates are compared with the simulations obtained from the CGE model. The CGE shows that the higher effective protection a subsector enjoys, the more negatively this subsector is effected by moving to free trade. In the third section of the study, a detailed analysis of the protected subsectors are undertaken to highlight more precisely the sources and structure of these inefficiencies.

A. NOMINAL AND EFFECTIVE PROTECTION IN MANUFACTURING

4. There are serious problems in estimating effective protection rates in India. Many industries are effectively autarkic where, depending on the degree of domestic competition, domestic prices might be below or above landed prices of imports (inclusive of tariffs). In this context, deregulation has a very important effect on domestic prices. Easing of entry barriers in many subsectors lead to a rush of investments and eventually to the creation of excess supplies. These excess supplies lead to lower prices than the tariff inclusive prices of imports. Thus for many product groups, domestic prices are much lower than landed (inclusive of tariffs) import prices.

5. Another reason for non-equalization of domestic and import prices is the implicit or explicit price controls and canalization. Public sector supplies a large portion of intermediate goods (especially in metals and chemicals) and thus either directly controls their prices, or controls the prices of imports through public sector canalizing agencies. Supplies of many of these commodities are also rationed to actual users. Thus, firms needing more inputs (both imported and domestic) than supplied by the rationing system have to import the difference (either directly or through REP licenses) at a higher landed price. In other products, Government agencies import the products at high tariffs and sell at a price that is lower than the landed price, thus cross subsidizing the imports through charging other levies on domestic production (Pursell, 1988; Aksoy, 1991). This is prevalent in many petrochemical products.

6. EPRs in India change dramatically over time because of the pricing policies of the Government for major intermediate products. By the nature of world markets, international prices of intermediates (metals, chemicals, etc.) are substantially cyclical. In the name of price stability, the Government adjusts tariffs on these products such that the international price fluctuations are not passed on to the domestic prices. Since ERP estimates are based on comparisons of domestic and international prices, certain sectors would show widely varying ERP estimates depending on when they are made.

7. Nominal Protection. The overall effects of trade, protection and regulatory policies for industry are ultimately reflected in the comparative prices of industrial products (domestic ex-factory prices relative to international prices, before taxes charged to the users, i.e., realized protection). Some 500 price ratios between domestic ex-factory prices and CIF import prices, (nominal protection coefficients NPC) covering the period 1987-1989, assembled from a multiplicity of sources (BICP reports, Bank subsectoral analyses, DFI-financed sub-projects) are presented in Table 1. These price ratios provide a reasonably comprehensive picture of the level of competitiveness of Indian industry in the late 1980s.

TABLE 1: NOMINAL PROTECTION COEFFICIENTS IN MANUFACTURING

Products	1986-1987	1988	1989	Overall	Landed Import Prices /a	
Edible Oils	1.57	2.32	---	2.11		
Miscellaneous Food Products				1.13	2.26	(1989)
Total Food Industries				1.82		
Cotton Textiles	1.10			1.10		
Synthetic Textiles	2.53	2.09	1.73	2.16		
Total Textiles				1.77		
Rubber Products				1.80		
Plastics Products				1.57		
Heavy Chemicals	1.87	1.96	1.82	1.84	2.27	(1988)
Petrochems Intermediates	2.31	2.47	1.98	2.19	2.30	(1989)
Synthetic Fibers/Resins	2.17	3.38	1.68	2.32	2.23	
Other Chemicals				1.56	1.47	
Total Chemical Industries				2.04	2.14	
Iron/Steel Products	1.51	2.08	2.01	1.74	1.89	(87-88)
Castings/Forgings				1.34	2.17	(87-88)
Non-Ferrous Metals (Aluminum)				1.23/b	2.09	(1987)
Total Basic Metals				1.54	2.08	
Machine-Tools				1.57		
Non-Electrical Machinery	1.72		1.97	1.80		
Electrical Machinery				1.35		
Total Machinery				1.67		
Electronics and Parts	1.58	1.19	1.37	1.49	1.63	(1988)
Motor Vehicles and Parts	1.39	0.84		1.26		

/a Coefficient of Landed (inclusive of tariffs) to CIF prices for imported goods.
/b Mostly Aluminum products.

Note 1: Subsectoral NPCs are unweighted averages
Note 2: Seven other subsectors with less than 6 observations each are not included in the table.

8. Some products groups have a sufficiently large number of price comparisons to permit the estimation of annual averages for 1986-87, 1988 and 1989 separately. The trends suggested by the annual averages confirm other indications derived from specific subsector knowledge: - slightly declining relative prices for synthetic textiles, synthetic fibers and resins, and petrochemical intermediates and stable relative prices for heavy chemicals and machinery. The increasing trend for iron/steel products is due to the shift in the sample's product-mix over the period 1987-1989 from mild steel to

special steels and alloys which have much higher tariffs. Table 1 also shows clearly the tremendous variability of relative prices in India compared to international prices. Despite significant real devaluation since 1986, Indian ex-factory prices in key subsectors such as metals, machinery, chemicals and other engineering products, are still between 50% to 100% above international prices. While part of this can be attributed to higher taxes and tariffs on inputs, it also probably reflects the very high protection given to these industries through tariffs and/or QRs.

9. Another characteristic of the trade regime is that the tariffs are set to keep the landed price of imports above the domestic prices. Comparison of landed import prices (inclusive of tariffs) to domestic ex-factory prices shows that landed import prices are between 20% to 50% higher than the domestic prices. This "water in the tariff" allows domestic producers to sell their products first (imports take place only if the domestic supply is not sufficient to meet the domestic demand)1/ and also permits them to invest in import substitution without any fear of import competition, even if their investments are inefficient. However, these high tariffs on many intermediates and capital goods increase the production costs of user industries substantially.

10. Effective Protection. The combined effect of realized protection on inputs and outputs, and the low value added content of Indian industry (averaging about 25% in domestic prices) have generated effective protection rates (EPR) that vary widely between and within subsectors and are generally high. The EPRs also fluctuate significantly over time due to changes in international prices which are not fully reflected in domestic prices. Given the low value added content of Indian industry, small deviations between domestic and international prices lead to large changes in EPRs. For this reason, an attempt has been made to mention the year in which a particular EPR estimate is made. Table 2 presents some 210 effective protection rates (EPRs) from various sources grouped into 16 product categories.

1/ This also means that the firms which are growing rapidly and/or need more inputs than what is allocated to them at lower prices, end up paying higher prices for their inputs.

TABLE 2: EFFECTIVE PROTECTION RATES (%) IN MANUFACTURING

Product	EPR /a	Year /b
Edible Oils	85	1988
Cotton Yarns	52	1986
Synthetic Textiles	100	
Plastic Products	37	
Heavy Chemicals	68	
Synthetic Fibers/Resins	162	
Iron/Steel Products	72	1985/86
Castings/Forgings	72	
Aluminum Products	-16	1986
Hand Tools	33	1987
Machine-Tools	21	1987
Non-Electrical Machinery	64	
Electrical Machinery	42	
Electronics and Parts	92	
Motor Vehicles and Parts	19	
Bicycles	24	1986/87

/a Subsectoral EPRs are unweighted averages.

/b Year to which pertain the large majority of observations. When no year is indicated, the observations are spread over 1986-1989.

Note 1: 11 other subsectors with less than 6 observations are not included in the table.

11. The levels of effective protection are generally high and suggest that the structure of protection grants Indian industry ample room for profits and/or inefficiency. A number of subsectors receive high effective protection: edible oils, heavy chemicals, iron/steel products, castings/forging, non-electrical machinery, electronics, and particularly synthetic fibers/resins and synthetic textiles. Few other subsectors appear to have lower or insufficient effective protection: machine-tools, hand-tools, electrical machinery, motor vehicles and parts, cotton textiles, and particularly aluminum products.

12. The EPR estimates are based on the comparison of value added in domestic and international prices, and effectively assume that capital costs are the same in all countries. Since most countries do not levy high taxes or QRs on capital goods, this assumption is a reasonable approximation. However, due to

the high capital costs in India, the observed effective protection rates need to be interpreted with caution. India is almost unique in levying such high taxes and tariffs on capital goods. Most other countries usually exempt machinery from import duties and domestic taxes. For example, in Brazil which has had very high protection for the domestic capital goods industry, the tariff collection rate in 1984 was 17% in non-electrical and 11% in electrical machinery. In Korea, the tariff collection rates on machinery for domestic use was about 9% during the late 1970s and early 1980s. Tariff collection rates on machinery for export use was negligible. Even in Pakistan (which has the second highest overall tariff collection rate after India), the tariff collection rate on machinery was 15% in 1987/88. In comparison, the average tariff collection rates on machinery in India were about 75% in 1983/84 and 67% in 1987/88. Higher prices for capital goods (domestic or imported) paid by Indian firms imply that their value added should include a larger return to capital (interest, depreciation and return on equity). This contributes, ceteris paribus, to domestic value added exceeding the value added in international prices, and to positive EPRs. That is, the firms in India which may be as efficient as the foreign firms, will nevertheless, show higher prices and EPRs. Thus, to make EPR estimates in India comparable to other countries, the effects of higher capital costs have to be taken into account.

13. Ettori (1990), has collected data on 60 appraisal reports for new investments prepared by ICICI and IDBI during 1988 and 1989. The data on these project appraisals have been reestimated to separate the effect of capital costs on EPRs. This data should be interpreted with caution for the following reasons. First, the parameters and data used in project appraisal reports tend to be favorable to comparative prices (domestic versus CIF) for the projects' outputs. Second, the projections implicitly assume that the projects will be operated efficiently to minimize production costs (inputs, labor, capacity operating ratio, ...). In practice, actual production costs are often higher than projected during appraisal, and domestic ex-factory prices are then increased as much as permitted by domestic competition and the degree of protection provided by the QRs and tariffs. Third, in many cases excise (or CVD) taxes on inputs that are reimbursed under MODVAT, could not be separated from input prices. So the input prices are overestimated. For these reasons, actual effective protection rates are underestimated (see Ettori, 1990 for the details of estimation).

14. The level of EPR just sufficient to compensate the firms for higher capital costs (sufficient to earn a return on investment equal to that under free trade) is termed compensatory effective protection rate (CEPR). It should be mentioned that CEPR is not affected by the data problems mentioned above. Table 3 presents the EPRS and CEPRs for different subsectors. The difference between the actual EPR and the compensatory EPR is termed Net EPR and measures the protection given to firms above the level necessary to compensate for higher capital costs.

TABLE 3: COMPENSATORY AND ACTUAL EFFECTIVE PROTECTION BY SUBSECTOR /a

Subsector	No. of Firms	CEPR (%)	Actual EPR	Net EPR
Heavy Chemicals	9	41	69	28
Light Chemicals	3	49	-6	-55
Synthetic Yarns	3	60	77	17
Basic Steel Products	7	46	72	26
Electronics	8	24	95	71
Food Products	4	41	52	11
Other Engineering	14	49	-11	-60
Miscellaneous (Tires, Paper)	5	37	61	24
Total	53	42	46	4

/a The averages are unweighted averages.

Source: Ettori, 1990.

15. Table 3 shows that a large portion of the high observed EPRs are actually a compensation for the high investment costs in India. Between 20-60 percentage points of observed EPRs are just a compensation for high capital costs. Since the estimates of EPRs for the overall manufacturing sector are around 40%, most of that protection is just a compensation for high capital costs (World Bank, 1989). The protective system on average does not give high net protection to the industrial sector. However, the variability of net EPRs among different firms is so large that about half of the firms receive

excessive protection, while the other half receive negative net protection. In the process, the average ex-factory price of output in this sample is higher than international prices by more than 40%.

16. Table 3 also shows that sectors producing basic intermediates have generally higher net EPRs than downstream products. For example, basic chemicals, basic steel products, synthetic yarns and miscellaneous products (which are also basic inputs such as tires, paper, etc.) have high and positive net EPRs while downstream firms in engineering, machine tools, light chemicals have low or negative net EPRs. Again these subsectoral averages have large variations. The only exception is the electronics industry which was recently deregulated and is meeting a pent-up demand for its products. More recently the prices and EPRs in electronics have started coming down as these demands are satisfied.

17. In conclusion, the multiplicity of tariff and tax rates, special exemptions, special schemes and varying degrees of domestic competition have created a structure of effective protection which has large variability across firms and industries. However, it is a structure that gives, on average, much lower net protection to the firms while substantially increasing the average cost of production.

B. SIMULATING FREE TRADE

18. The EPRs summarized in the previous sections indicate that the production of key intermediates are relatively more inefficient and tend to have higher EPRs. This conclusion, however, is based on a sample of products and may not generalize if the whole economy is taken into account. To observe the economy-wide effects of protection, input-output tables are usually used to estimate effective protection rates. These static estimates, however, do not take into account the macroeconomic adjustments that accompany changes in the level of protection. Moving to a free trade environment (i.e., elimination of protective tariffs and QRs) will effect individual subsectors through two channels. First is the effect of changes in relative prices caused by the changes in protection. The second effect is caused by macroeconomic adjustments that are required to compensate for the tariff and QR changes and maintain internal and external balances. The Indian Government

receives close to one-third of its revenues from import tariffs and lowering of tariffs and QRs would effect external and internal balances requiring adjustments in public expenditures, other taxes and exchange rates. Ideally, the simulation of reduced protection should assume that all trade taxes are removed and compensating fiscal adjustments are made through lump-sum taxes. In this study, a more realistic and therefore theoretically less correct adjustment is assumed. First, the protective tariffs are assumed to be lowered to a uniform 20% rather than to zero. This is because, for a considerable amount of time, the revenue from tariffs will be required in India. Second, the QR premium is assumed to be a uniform 25% and all QRs are assumed to be eliminated. Third, MODVAT is extended to allow those sectors registered under MODVAT to claim full credit for excise and CVD paid on capital goods against their output tax liability.

19. This simulation is made using a 72-subsector general equilibrium model developed by Mitra and Go (1991) using the database for 1987/88. The model has an integrated macro-fiscal and micro-sectoral perspective and attains micro and macro equilibrium simultaneously. It is capable of tracing the effects of policy changes on the major macroeconomic aggregates and deriving the impact of tax, tariff and expenditure changes on output, value added, prices and real rates of return on the disaggregated sectors of the economy. (See Mitra and Go, 1991 for details of the model.)

20. These adjustments are simulated to achieve balance of payments neutrality, i.e., maintaining the existing current account deficit. Foreign savings is therefore given and domestic savings must adjust to ensure equality between total savings and investment. Domestic savings may be raised either by cutting public expenditure or by increasing tax revenue with fixed public expenditure. Maintaining the current account deficit with tariff cuts requires a tightening in the management of domestic demand. While this can in practice be brought about through a range of instruments including monetary policy and administered prices, the focus here is on fiscal adjustment. The first alternative is to raise excise taxes-cum-CVD while keeping government expenditure constant in real terms. In the second alternative, the government

reduces domestic demand by cutting its own expenditures, both current consumption and public sector investment.2/

21. Table 4 summarizes the industry specific effects of moving to lower and uniform tariffs and eliminating QRs. The magnitude of the output changes summarized below should be treated with caution since the model does not incorporate the effects of endogenous technological improvements that would be induced by greater openness to the world economy. Changes in output, therefore, should be treated as illustrative, indicating the direction of change and highlighting the sub-sectors that will be affected.

2/ Both alternatives are potentially contractionary. The price deflation caused by fiscal contraction must be accompanied by a reduction of nominal wages in order to keep real wages from rising to values incompatible with the maintenance of base year levels of employment. Since nominal wages of many workers are, however, sticky downwards, an exchange rate devaluation is required to raise prices and hence prevent an increase in real wages inconsistent with equilibrium in the labor market. The latter equilibrium would have been brought about without policy intervention if wages were flexible downwards.

TABLE 4: SUBSECTORAL EFFECTS OF FREER TRADE
(% Change)

	Expenditure Adjustment		Tax Adjustment	
	Gross Output	Rate of Return /a	Gross Output	Rate of Return /a
AGRICULTURE	0.8	0.8	0.0	0.0
ENERGY	0.7	0.7	-2.8	-2.8
MANUFACTURING	-2.6	-1.9	-4.8	-4.1
Food, Beverages and Tobacco	-0.8	0.0	-2.6	-1.8
Leather and Textiles	7.1	7.1	2.1	2.2
Petroleum and Coal Products	1.6	0.8	-0.4	-1.6
Chemicals	-6.7	-5.0	-8.9	-7.2
Non-Metallic Mineral Products	6.9	6.9	6.6	6.7
Metals	-15.3	-13.9	-15.7	-14.2
Metal Products	0.3	0.4	-1.3	-1.2
Machinery	-16.6	-14.9	-16.4	-14.5
Electrical Appliances and Electronics	-4.4	-4.5	-7.4	-7.5
Transport Equipment	-1.8	-1.0	-2.9	-2.2
Other Manufacturing	-5.4	-3.8	-6.5	-4.9
CONSTRUCTION	-1.1	-1.1	0.9	0.9
SERVICES	2.0	1.7	0.7	0.4
TOTAL	-1.0	0.0	-2.2	-1.3

Source: Mitra and GO (1991).

/a Gross profit margin on output.

22. The results suggest that the manufacturing sector as a whole contracts. Part of this contraction is due to the fact that the manufacturing sector is highly protected and this protection is removed. An equally important part is that most of the indirect taxes are levied on the manufacturing sector. In agriculture, for example, lower protection is coupled by high subsidies that are not eliminated in these simulations.3/ Despite the limitations of the simulations, the results presented in Table 4 on manufacturing subsectors are quite consistent with the conclusions of the firm-level EPRs. The three

3/ In India, the manufacturing sector is both protected and taxed, while agriculture is disprotected and subsidized. In this experiment, protection is removed but taxes and subsidies are left intact.

hardest hit sectors are machinery, metals, and chemicals, indicating that these subsectors have the greatest inefficiencies and are highly protected by the existing trade regime. Export oriented industries such as textiles and leather and non-metallic mineral products (gems) expand as a result of changes in relative prices.

23. Table 4 also shows that the type of compensatory fiscal adjustment (tax increases or expenditure cuts) make a significant difference on what happens to different industries. Public expenditure cuts primarily fall on construction. The excise tax increases, on the other hand, fall primarily on the manufacturing sector. This is because government expenditures are concentrated on services and construction while central excise taxes are mainly levied on manufactured goods. Therefore, the reduced protection and fiscal adjustment through tax increases penalize the manufacturing sector in two ways. Intermediates and capital goods are affected through lowered protection while consumer goods are penalized by higher excise tax rates. This is the reason overall profitability of the manufacturing sector declines by 4.1% under tax increases but declines only 1.9% under expenditure cuts.

24. These simulations, despite their limitations, supply additional evidence that the trade regime protects basic intermediate products and capital goods. The consumer goods, which are also highly protected both by tariffs and import bans seem to have lower protection. The uneven subsectoral impact of reducing protection can be traced both to the structure of external protection and to the uneven impact of deregulation in the domestic industry. In many instances, despite high external protection, greater domestic competition and ability to modernize production facilities have allowed firms to be more competitive and not utilize the full protection afforded by the tariffs and QRs. Ahluwalia (1991) shows that the total factor productivity (TFP) growth in the 1980s has been highly uneven. While TFP has grown at 6.0% p.a. for consumer goods, it has grown 3.4% p.a. for capital goods and only 1.4% p.a. for intermediate goods. These numbers are again consistent with higher EPRs observed on basic intermediate goods producing sectors.

D. DEVELOPMENTS IN SELECTED SUBSECTORS

25. Industrial regulatory reforms during the 1980s have introduced more competition between domestic firms by relaxing regulations on capacity licensing, production levels, and prices. These reforms have had important effects in a number of subsectors where realized protection has been lower than that afforded by the trade regime. At the same time, both the firm level EPRs and model simulations outlined in the previous sections indicate that the core input supplying sectors of the economy are highly protected and relatively inefficient. This section first presents a few examples where liberalization of the regulatory environment has led to increasing efficiency. In the second part, a more detailed analysis of the core sectors, i.e., steel, petrochemicals and capital goods is undertaken to identify more precisely the sources of inefficiency in these subsectors. It should be pointed out that the information for these subsectors is highly uneven across different product groups. Therefore, the analyses are partial and focus on product groups where the information is available.

26. One successful example of liberalization has been the cement subsector. Prior to 1982, this subsector was highly regulated, ex-factory prices were controlled, and plants were obliged to sell a part of their production to the public sector at a below-market "levy" prices. As levy prices failed to keep pace with rising input costs (e.g., energy), the price controls had an adverse impact on the subsector's profitability. Moreover, investments in cement were constrained by restrictive capacity licensing policies, particularly towards MRTP companies, and by the levy sale exemptions granted to mini cement plants. In addition the freight equalization scheme, introduced in 1956 to permit uniform cement prices throughout the country, distorted decisions regarding plant location.

27. The reforms adopted in 1982 included gradual reduction and elimination of the levy cement obligation, a concomitant complete decontrol of prices, elimination of the freight equalization scheme, significant relaxation of investment licensing and entry of MRTP firms, and easing in foreign technology transfers and collaborations. The response of the cement subsector to liberalization was impressive. Investment and production accelerated, price increases in deficit regions brought further investments in these regions, and

the domestic market become very competitive. In response to these reforms, the relative price of cement increased markedly between 1982 and 1985 to first reestablish the industry's profitability, and then continuously declined by about 18% relative to the wholesale price index. Although imports of cement are restricted and no imports have taken place since 1986, the price of cement in India is presently competitive with world prices, and some exports are taking place.4/

28. Liberalization also took place in a number of subsectors producing finished goods, such as Electronics and Motor Vehicles (including 2-Wheelers). In these two subsectors investments were largely delicensed including "broad-banding" of the product-mix, and foreign technology transfers and collaborations were made easier after 1984. Competition between numerous domestic firms grew, substantial amounts of resources were attracted in these subsectors for investment, and production growth accelerated in conjunction with more liberal policies for imports of components. Tariffs were rationalized and reduced for electronic industries (30% on raw materials and 45% on components, both on OGL, and 75% on finished products, mostly restricted). The liberalization and enhanced competition had a beneficial impact on prices in these two subsectors, where prices declined not only relative to overall manufacture prices but also in absolute terms during a couple of years in 1984 and 1985. The impact of liberalization of domestic production and imports was particularly visible in the electronic industries. Table 5 summarizes a few key indicators in the electronics subsector.

4/ It should be noted, though, that liberalization of this subsector was facilitated by the small amount of imports and the natural protection enjoyed by cement due to transportation costs.

TABLE 5: TRENDS IN ELECTRONIC INDUSTRIES

	1981	1983	1986	1987
- Number of Firms	179	467		590
- 4-Firm Concentration Ratio (%):				
Computers	90	43		52
Black & White Televisions	32	29		41
Printed Circuit Boards	83	50		54
- Value Added Index (1980/81 prices)	100	143		393
- Share of Public Sector (%)	43	n.a.	n.a.	32
- Imports as percentage of Output		36.7	50.8	45.8
- Price Index: Overall	100	102.5	95.7	82.6
Consumer Products	100	85.0	76.5	80.0
Personal Computers	n.a. /a	100 /a	41.7	16.7
Components	100	97.5	106.5	97.5

/a PCs were manufactured in 1984 for the first time.

Source: Joseph (1989).

29. As a result of the liberalization, output in this sector has grown more than 25% p.a. in real terms in the 1980s. Relative prices have declined due to domestic competition, and the share of imports, which first increased due to import liberalization, has started to decline over the last few years. Similarly, high rates of effective protection enjoyed by this sector in the late 1980s started to decline recently.

30. In the automotive subsector, too, competition enhancement through delicensing and the entry of modern cars by Maruti (a public enterprise) forced enterprises to improve their products, with a focus on quality, and to fight for market shares. However, the absolute protection given to automotive products (imports are practically banned) and the absence of minimum efficient scale (MES) thresholds permitted excessive entry of new firms and plants with inefficient sizes and investments too small to ensure competitive productivity and quality. Rationalization of under-sized inefficient producers, especially

in 2-Wheelers and light commercial vehicles, has emerged in recent years. This is expected to continue until the structure of the automotive industry and its capacity are rationalized by market forces.

31. By contrast with the subsectors analyzed above, a number of important subsectors providing critical raw materials and intermediates, such as iron and steel and heavy chemical industries, did not receive significant liberalization. Three subsectoral groups, basic metals, heavy chemicals and machinery, (a) provide a significant share (14%) of all inputs consumed by other subsectors of the economy; (b) constitute a substantial share of fixed investment (26%); and (c) absorb a large share of imports (39%). The share of these three subsectors in inputs of some key industries is given in Table 6.

TABLE 6: 3-SUBSECTOR INPUT SHARE IN TOTAL INPUTS

Output Subsector	Input Coefficients (% of output) Heavy Chemicals	Basic Metals	Machinery and Parts	3-Subsectors as % of Total Inputs
Synthetic Textiles	17.4	0.2	1.5	27.0
Plastic Products	31.7	1.0	0.4	46.3
Pesticides	20.5	1.5	0.8	30.9
Paints	33.5	1.5	1.2	48.6
Drugs	18.5	1.4	1.2	31.1
Hardware	0.4	36.4	1.4	61.5
Metal Products	0.8	42.5	0.4	66.8
Electronics	1.7	3.4	20.9	42.7
Rail Equipment	0.4	26.2	3.9	50.9
Motor Vehicles	0.5	25.4	3.0	45.1
Bicycles	1.5	21.9	1.6	39.7
Other Transport Equipment	1.2	24.3	1.5	38.9
Miscellaneous	1.8	18.2	1.7	37.5

32. Table 6 shows that the share of these three subsectors in total input use of some important sectors range from 27% in synthetic textiles, to 45% in motor vehicles and 67% in metal products. Efficiency and pricing of these key input supplying sectors will essentially determine the cost structure of the rest of the manufacturing sector. Unfortunately, it is exactly these three subsectors that have the highest tariff rates, highest relative prices, and also have very high rates of effective protection. Furthermore, it is these three subsectors that have received bulk of the public investment funds and

have increased their share of output substantially. The issues confronting these subsectors are discussed below.

(a) Iron, Steel and Ferro-Alloys

33. Iron and steel is India's most important manufacturing subsector, accounting for about 10% of manufacturing output and value added. It has two different segments; one segment produces mild steel and consists mainly of integrated steel plants (ISP), and the second segment produces special steels and alloys primarily by mini-steel plants (MSP). The ISP segment is dominated by public enterprises Steel Authority of India Limited (SAIL) and its affiliates, and the private Iron and Steel Company Limited (TISCO). The prices of mild steel products are regulated through the Joint Plant Committee. User prices of domestic mild steel which were competitive in the early 1980s shot up substantially (by about 50-60%) above international prices during the period 1982-1987. This was due to the appreciating currency, declines in international prices of steel, inefficiencies in public sector steel plants and various taxes and levies placed on steel products. Price increases in steel jeopardized the competitiveness and export potential of major downstream industries, in particular engineering and capital goods. Recent favorable developments; modernization investments and increased efficiency in public ISPs, price restraint, depreciation of the exchange rate, and increasing international prices of steel as of 1988, reversed the trend of comparative prices, and domestic prices of most mild steel products regained some international competitiveness in 1988-1989. By contrast, high protective tariffs for special steels and alloys (110% to 345% nominal tariffs and 50-60% tariff collection rates) and quantitative restrictions on imports of such steels have permitted inefficient MSPs to sell their products at prices more than 100% above international prices and still survive despite high production costs stemming from their suboptimal capacities. In view of the negative impact of such prices on downstream industries (automotives, capital goods), the Government has introduced minimum efficient scales (MES) of 50,000 tons p.a. for MSPs. About half of the 50 existing special steel MSPs have capacities above this MES. Table 7 shows the structure of production in iron and steel subsectors.

TABLE 7: IRON AND STEEL - STRUCTURE OF PRODUCTION

	Mild Steel			Special Steels/Alloys		
	No. Plants	Capacity	Production	No. Plants	Capacity	Production
		(000T)			(000T)	
Integrated Steel Plants (ISPs)						
SAIL (Public Sector) /a	6	8,600	6,800	2	130	120
TISCO (Private)	1	2,000	2,170	1	75	80
Mini-Steel Plants (MSPs)	150	3,000	2,760	50	1,800	800
Total	157	15,600	11,730	53	2,005	1,000

/a Including IISCO's two plants, which are managed by SAIL.
Note: Capacity and Production are expressed in terms of saleable steel.

34. International Trade in steel is now confined just to imports, which totalled 1,660,000 tons in 1988/89 including about 100,000 tons of special steels and ferro-alloys. Exports peaked in the late 1970s (up to 5% of output) when India was a low cost producer of steel, and vanished after 1982 when domestic production costs became uncompetitive. The bulk of imports are canalized through SAIL and other public bodies while a small share (about 10%) is available under Limited Permissible licenses.

35. Protective tariffs in this subsector range between 25% (metal scraps) to 110% for alloys and 345% for stainless steel, with a weighted average of 40%. The actual collection rate for protective tariffs and excise taxes were 34%, and 2% respectively. These collections rates were respectively 24% and 9% in 1973/74, illustrating the trend of increasing tariffs and decreasing excise taxes.5/

36. Prices of mild (basic) steel have been regulated by the Joint Plant Committee (JPC), which comprises the secretary of the Steel Department, representatives of all steel producers, and a representative of the Railways Department. Since the early 1980s, when steel price regulations were liberalized, the JPC has set the steel prices for ISP's major products without the

5/ The collection rates vary depending on the type of product. For metals as a group, the protective and total tariff collection rates are 71% and 81% respectively. In ferrous metals, these rates are 66% and 73% respectively.

Government's formal approval. The JPC-set prices comprise a retention (producer) price, and various taxes and levies (for the Steel Development Fund, the Freight Equalization Fund, and the Engineering Goods Export Assistance Fund) which increase user prices 30-35% above producer prices. The producer prices are determined on a cost-plus basis to allow for a reasonable return on investment. Such administered prices have not given adequate incentives for improved performance and modernization, and have diluted the competition. Despite pressures from major steel consumers like railways, steel prices experienced a rapid increase over 1975-1985 (11% p.a.) which slowed down slightly in recent years (8.5% p.a. over 1986-1987).

37. Prices of domestic mild steel, which were competitive up to the early 1980s, increased markedly above international prices in the mid-1980s. Due to increased efficiency and price restraint, real depreciation of the exchange rate, and increasing international prices of steel, Indian prices of most mild steel products now appear to be closer to international prices. The price ratios (ex-factory to FOB prices) are presented in Table 8.

TABLE 8: NPCs FOR STEEL PRODUCTS

Mild Steel					Special Steels/Alloys	
Product	1980	1985	1988	1989	Product	Mid-1988
Wire Rods	0.57	1.33	1.06	0.91-1.00	Cutting Steel	2.6-2.7
Plates	0.64	1.50	1.04-1.11	0.92-1.13	Stainless Steel	1.6-2.9
HR Coils	0.88	1.69	1.05-1.10	1.09-1.14	Spring Steel	2.54
CR Coils	0.98	1.72	1.02-1.15	0.94-0.95	Ball-Bearing Steel	2.24
Galvanized Plates	0.98	1.84	0.92	N.A.	Alloy Steels	2.2-2.3

Sources: - Industrial Costs and Prices, CEI Study (August 1988).
- International Competitiveness of Indian Steel Industry, Arvind Pande (1989).
- Economic Times, August 12, 1988.

38. On the other hand, prices of non-ISP producers, (in particular mini-steel plants) and special steels/alloys, are unregulated and determined by the conditions of highly competitive domestic markets (except for ferro-chrome); taking into account the import restrictions (canalization) and the high protective tariffs for special steels and alloys (110% to 345% nominal tariffs, and 50% to 160% tariff collection rates). Given the permanent shortage of special steels on the market, domestic prices have been driven by

landed prices (after duties) of imports and have generally been more than 100% above international prices. One exception is Ferro-Silicon, where the recent doubling of international prices (from US$500 to US$1,000 per ton) made Indian prices competitive.

39. As a result, the profitability has been high for mini-steel plants, particularly for those with production capacities above 50,000 tons p.a. Financial results for a sample of 9 MSPs indicate net profit to net worth rates ranging between 12% to 52% and dividend rates of 3 to 15%. On the other hand, most MSPs with small furnaces and obsolete technologies have mediocre financial results.

40. The analysis of the production cost structures presented in Table 9 indicates high efficiency of raw materials use and good profits in TISCO (the only private ISP) as compared to SAIL and MSPs. Among mini steel plants, the efficiency and cost structures vary greatly depending on the capacity utilization which in turn is dictated largely on availability of power, a critical input for MSPs.

TABLE 9: PRODUCTION COST STRUCTURES

	SAIL	TISCO	MSPs (1988/89)	
	(1987/88)	(1988/89)	Range (in %)	Average (%)
Raw Materials	43]	40	25-62	46
Energy	9]		15-46	18
Labor	14]	40	3-12	9
Other Inputs	23]		9-28	20
Interest/Depreciation	11	20	5-19	7
Total Costs	100	100	100	100
Gross Profit (% Output)	-1.0	11.0	6-11	9.5

41. Effective Protection also varies widely between the types of plants (ISPs versus MSPs), products (flat versus long products) and steel quality (mild versus special steels/alloys). Table 10 assembles the fragmentary, and largely outdated, available data on EPRs.

TABLE 10: EFFECTIVE PROTECTION RATES

Product	Year	NPC		EPR
		Output	Input	(%)
ISP: SAIL (public)	1985	1.30	0.89	74
ISP: TISCO (private)	1985	1.31	1.11	51
MSPs (Mild Steel)	1985	1.43	1.35	32
CR Coils	1985	1.61	0.89	112
CR Coils (MSP)	1987	1.70	1.52	174
Galvanized Plates/Sheets	1988	1.68	1.66	93

Sources: Pursell (for 1985) - DFI subproject appraisal reports.

The value added content in ISPs is high, averaging about 50%. It should be noticed that the EPR for SAIL is higher than for TISCO, due to the former's access to inputs (coal, iron ore) at preferential prices. The value added content is quite low in MSPs. For example, the basic production parameters and prices for an MSP project to produce cold rolled (CR) coils in the late 1980s are as follows:

		Prices (Rupees per ton)		
		Domestic	CIF	NPC
Output:	CR Coils	14,750	8,950	1.65
Inputs:	HR Coils (Local)	8,380	5,710	1.47
	HR Coils (Imported)	10,700	5,710	1.87
	Value added share in output at international prices: 16%			

42. It is quite likely that effective protection has decreased in the mild steel ISPs during recent years with the increased competitiveness of steel prices. Prices for the major inputs (iron ore, coke) expressed in foreign exchange (US$) have remained largely constant. On the other hand, prices of major mild steel products (rods/bars, plates/sheets, HR coils) expressed in foreign exchange have come down. Under such circumstances, the EPR of SAIL may presently be about 30% and that of TISCO around 10%. In view of the high protection and prices of their output, effective protection in special steel/alloy producing MSPs most probably remains high. However, the

information base on special steels and alloys is incomplete and does not allow more precise analysis.

43. Conclusions. These results indicate that in mild steel products, protective tariffs can be reduced to 20-30% range without significant effects on the viability of most of the existing enterprises. Furthermore, their imports can also be placed under OGL.6/ The information on special steels is less clear, but, except for very inefficient MSPs, about half of the firms can survive with much lower tariffs. Given the small amount of labor and capital in a special steels and their importance in engineering and especially capital goods production, exit of the very inefficient producers can be seriously considered. Furthermore, special rehabilitation packages can be introduced for the more efficient firms.

44. In non-ferrous metals, the situation is also mixed and the information is not available on a consistent basis. Aluminum, which has the biggest share, is now produced at very close to world prices. However, in items such as copper, domestic prices are significantly higher than the international prices. In other products, India is a net large importer and most of the tariffs are purely for revenue purposes.

45. Casting, forging and foundry subsectors have not been analyzed in detail. However, the existing firms in these subsectors will probably have more serious problems than the mild steel producers. The protective tariff collection ratio for this subsector is around 80%, and many firms operate with outdated technologies.

(b) Petrochemical Industry

46. Though relatively small within manufacturing (about 1.5 to 2% of manufacturing output and value added), this complex subsector is important for a number of reasons. First, it has been growing very fast during the past decade and is attracting large investments. Second, its products have a wide

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6/ In 1989 SAIL proposed to reduce the tariffs to 30 percent and place all mild steel items on OGL. It was rejected by Department of Steel.

variety of applications as intermediates in many other industries. Petrochemical products can be broadly categorized as follows:

(a) primary intermediates/aromatics, such as ethylene, propylene, benzene, toluene, styrene, xylenes, monoethylene glycol (MEG), acrylonitrile (ACN), PTA, DMT, caprolactam, which in turn are used to manufacture secondary products;

(b) polyolefins ("plastics") comprising principally low density and high density polyethylenes (LDPE and HDPE), polypropylene (PP), polystyrene (PS) and polyvinyl chloride (PVC);

(c) synthetic rubbers, such as styrene butadiene rubber (SBR) and polybutadiene rubber (PBR); and

(d) synthetic fibers such as nylon, acrylic staple (ASF) and polyester staple (PSF).

47. Existing structure of production, and ownership are presented in Table 11:

TABLE 11: PETROCHEMICAL INDUSTRY: STRUCTURE OF PRODUCTION

Product Group	Capacity	Output	Imports	Ownership Pattern	
		(000T)		Public	Jt/Prvt
Polyolefins	610	270	290	90%	10%
Aromatics/a	395	295	n.a.	12%	88%
Resins/Rubbers	50	35	25	60%	40%
Fibers	180/b	150	5	--	100%
Detergents	195	n.a.	n.a.	15%	85%

/a Including benzene/toluene capacity and output of steel plants.
/b Includes only the major producers, which account for about 85% of total capacity.

48. Government regulations are pervasive in this subsector. Although the first two Indian petrochemical plants (naphtha crackers) were set up by the private sector in 1960s, the industry's strategic plants providing the critical "building blocks" (intermediates and aromatic products) is dominated by the public sector. Currently, large private investments are entering the

industry. The sector is not deregulated and licenses are needed for new investments. Moreover, the initial policy for the subsector's development was for import-substitution aimed at serving a small domestic market. As a result, most existing plants have had capacities markedly below MESs and consequently uncompetitive production costs.7/ In addition, the Government has established a complex and ad-hoc system of tariffs, input pricing and regulations governing most intermediates and semi-finished products (e.g., benzene, styrene, xylenes, caprolactam, DMT, PTA, PSF,...). Imports of many products affecting the sector are subject to QRs, especially canalization. The canalization agencies adjust import to the demand gaps unmet by domestic production and supply the local demand for many products at regulated prices (i.e., weighted averages of import and cost-plus domestic prices). These regulated prices have a loose and erratic relationship with CIF and landed (including tariffs) prices.

49. The situation is further complicated by Government charging high prices for the basic inputs of the industry (60-80% above international prices for naphtha). Existing petrochemical plants have been based on naphtha but the new ones are to be based on both naphtha and gas. Debate has been going on for the last two years on the price of gas to be charged for petrochemical plants. Recently, agreements have been reached to charge a price close to international energy equivalent levels.

50. Imports of petrochemical products have been determined primarily by shortfall in domestic production. These shortfalls have been substantial for those products where domestic capacity is still insufficient to meet domestic demand (e.g., polyolefins), and represent now about 23% of domestic output (51% in value after duties). Petrochemicals are thus one of the few product groups for which imports constitute a substantial share of the Indian market. Import regimes range from OGL (e.g., polyolefins, synthetic rubbers, MEG) to canalized (e.g., naphtha, benzene, p-xylenes), and restricted (e.g., ACN, PA, DMT). Imports have been effectively banned for products with sufficient or

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7/ In order to avoid the recurrence of past investment patterns and creation of sub-optimal capacities, the Government now imposes minimum efficient scales for new investment. Furthermore, many of the suboptimal plants have been expanding their capacities to the specified MESs.

excessive domestic capacity (e.g., PSF, linear Alkyl benzene (LAB) as of January 1988). Substantial progress has, however, been made in rationalizing the import regime for polyolefins (commodity plastics) which have been placed on OGL and tariffs lowered and made more even.

51. Protective tariffs as a rule are variable and high. After declining in the 1970s, the tariff and excise collection rates increased markedly from 87% and 15% in 1978/79 to 117% and 24% in 1987/88 respectively and are now among the highest. Petrochemical products are considered "luxury" products and taxed according to Government's revenue needs. Protective tariffs presently are about 50% for plastics, 65% for styrene, about 85% for synthetic rubbers and resins and benzene, about 90-100% for xylenes and caprolactam, 150% for basic building blocks (ethylene, propylene and butadiene) and MEG, and 195% for PTA and DMT. There are numerous ad-hoc rates as well as exemptions. Since international prices of petrochemicals are highly volatile, Government tries to adjust the tariffs to maintain domestic price stability and the level of protection.8/ However, there are usually lags and delays in these adjustments. In any case, these adjustments usually affect either some segments of industry or downstream users.

52. Profitability of petrochemical companies, both in public and private segments, has tended to vary with international prices: profitability was relatively low in the early 1980s but has been relatively high in the second half of the decade. IPCL, the leading public sector firm in petrochemicals and the dominant one in the sector, has recorded high profit rates (11% of sales and 16.5% of capital employed in 1987/88); significantly above those of other public sector firms. The same pattern has prevailed in the private sector (Table 12). Profitability ratios of private petrochemical firms have been significantly above industry averages.

8/ For example, p-xylene tariffs were lowered in 1988; plastics tariffs were lowered in 1988 and 1989 and increased again in 1990.

TABLE 12: PETROCHEMICALS: PRIVATE SECTOR PROFITABILITY RATIOS

	1982-83	1985-86	1987-88
Basic Petrochemicals:			
Gross Profit to Sales(%)	6.7	14.7	13.0
Return on Capital(%)	8.8	21.7	20.1
Plastics:			
Gross Profit to Sales(%)	11.0	12.9	13.3
Return on Capital(%)	13.9	20.3	22.7
All Industries:			
Gross Profit to Sales(%)	10.5	10.5	9.6
Return on Capital(%)	16.7	16.0	13.3

Source: Financial Performance of Private Companies, ICICI.

53. Other sources confirm the high profitability of private petrochemical firms. For a different sample of 9 large companies in 1988/89, the gross profit to sales and return on capital ratios were 18% and 22.3% respectively, yielding a net profit to net worth ratio of 27.3%.

54. Effective Protection granted to the industry by the complex system of import quota management and price administration has been high, ranging mostly between 60% and 177%. Table 13 summarizes the available EPR estimates for petrochemicals. EPRs relating to IPCL are based on actual price data of 1987 (Pursell, 1988). The other EPRs are derived from appraisal reports of DFIs for their 1988/89 projects.

TABLE 13: PETROCHEMICALS - EFFECTIVE PROTECTION RATES

Product	Year	Nominal Protection Rate		Effective Protection Rate(%)
		Output	Inputs	
IPCL: PS	1987	144	217	64
LDPE	1987	102	116	90
PBR	1987	66	135	17
LAB	1987	67	50	177
DMT	1987	227	113	428
Overall	1987	110	41	225
EPDM Rubber	1988	67	47	121
ABS	1989	77	73	86
Nitrile Rubber	1989	77	82	68
Alpha-Olefins	1989	77	111	25
MA	1989	61	61	61
PA	1989	100	59	101
PO/PG/Polyols	1989	83	n.a.	135

Source: Pursell (1988), DFIs.

55. Existing firm level data has been reestimated to separate the effect of higher prices of inputs and capital, and the required level of nominal protection to compensate for these high prices is termed "compensatory protection." Table 14 compares the official tariffs with the realized nominal protection (ratio of domestic to international prices) and the level of nominal protection required to compensate the firms for the high costs of investment and inputs (compensatory protection) in India.

TABLE 14: PETROCHEMICALS - NOMINAL PROTECTION RATES

Product	Protective Tariff	Import Regime	Realized Protection (NPR,Z)/a	Compensatory Protection(Z)
Intermediates				
p-xylene	115	Canalized	110	42
MEG	148	OGL	64	36
PTA	208	Restricted	75	31
DMT	210	Restricted	75	24
ACN	110	Restricted	70	28
Caprolactam	72	Canalized	68	16
ABS/b	145	Canalized	77	55
Alpha-Olefins/b	95	OGL	77	82
MA/b	115	OGL	81	47
PA/b	115	Canalized	110	32
Polyolefins				
LDPE/LLDPE	57	OGL	14	43
HDPE	65	OGL	10	48
PP	50	OGL	20	32
PS	50	OGL	28	31
PVC	40	OGL	11	15
Synthetic Rubber				
PBR	100	OGL	66	19
Buta Rubber /b	85	Canalized	77	68
EPM Rubber /b	85	Canalized	67	44
Synthetic Fibers				
ASF	180	n.a.	137	24
PSF	213	Restricted	192	32

/a These price ratios, valid for one point of time (generally in 1988), are only indicative, given the volatility of domestic and international prices in recent years.

/b Projected parameters for DFI subprojects.

56. The domestic prices given by realized protection are generally lower than the landed prices (CIF plus protective tariffs) and in turn higher than the protection required to compensate for the extra costs of capital and inputs (compensatory protection). Tariffs contain substantial amounts of "water" introduced largely for the purpose of generating public revenue from

the imports. Despite this, domestic prices, resulting from the regulatory and pricing framework, have permitted local firms to earn high profit margins. The cost of high protection has been passed on to the downstream industries, especially to the synthetic textiles industry.

57. Conclusions. In 1988, BICP, at the request of Government prepared a report on aromatics subsector giving its recommendations on future tariff and import policy (BICP 19__). The BICP recommendations on the basic building blocks of petrochemicals are:

- The existing canalization of naphtha and fuel oil imports should continue but the domestic price should be aligned to CIF prices plus a 25% import duty.

- Depending on the long-term price of naphtha, tariffs on benzene and toluene should be changed from 0 and 85% respectively to a range of 40% to 55%. These commodities should be moved from the canalized to OGL-stock and sale list.

- P-xylene and o-xylene tariffs should be reduced from 120% and 125% respectively to a range of 55% to 70%. They should be shifted from OGL-actual user to OGL-stock and sale list.

58. The proposed tariff revisions for these basic intermediates should be part of a tariff and policy reform for the downstream products (e.g., DMT/PTA, caprolactam, PSF, PFY, NFY,...) to ensure that the resulting reduction in prices of aromatics are reflected in a corresponding decline in the prices of these downstream products.

59. According to the estimates, the existing polyolefin plants are totally naphtha based and their capital costs are almost fully depreciated. There is a very large investment program being undertaken for the basic petrochemical industry based on naphtha and natural gas. Even with naphtha prices at 60-80% higher than CIF prices, the bulk of the existing industry can coexist with average protective tariffs of about 40%. Replacing the high naphtha price

differential by an equivalent excise tax and including it within the MODVAT scheme would allow the Government to reduce the protective tariffs even further. For new gas based plants, if the natural gas prices are set at international energy equivalent levels, even with high capital costs, the amount of protective tariff required is about 30%.9/ If capital costs are also reduced, the protective tariffs could be reduced even further.

60. In other chemical based industries, the situation is not so clear. In inorganic chemicals, the existing average protective tariff collection rate is quite low (about 32%) and for many acids, there are significant natural protection due to high transportation costs. However, the low tariff collection rate in this subsector is due to low tariffs on phosphoric acid and ammonia which are inputs into fertilizer production. The average protective tariff collection rate for other inorganic chemicals is about 100%. The fertilizer subsector operates with very low tariffs but the retention price system for each enterprise and the canalization system effectively subsidize the inefficient producers.

(c) Capital Goods Industries

61. This cluster of subsectors producing machinery and equipment (both electrical and non-electrical), excluding consumer goods and durables (motor vehicles, electrical appliances, and electronic goods), have traditionally fulfilled a central role in India's development planning and policies. Indian planners, who had initially identified this set of subsectors to be strategic in their quest for economic self-sufficiency, have promoted their development, notably through the creation of new public enterprises (PEs) and the take-over of failing private engineering firms.

16/ At this level, the firms (IPCL) still have a profit rate 60% higher than the manufacturing sector average.

62. Capital goods industries are defined herein to comprise the following three groups of subsectors:

Non-Electrical Machinery

- Agriculture Machines
- Food/Textile Machinery
- Other Industrial Machinery
- Machine-Tools
- Other Non-Electrical Machinery

Electrical Machinery

- Electrical Industrial Machinery
- Electrical Cables/Wires
- TeleCommunications Equipment
- Other Electrical Machinery

Transport Equipment

- Ship Building
- Rail Equipment

These subsectors, representing 10% to 13% of manufacturing output and value added, constitute the largest group of industries in India.

63. Structure. The production structure of the capital goods industry is presented in Table 15:

TABLE 15: CAPITAL GOODS: STRUCTURE OF INDUSTRY

	Structure (%)		Growth (% p.a.)		Public Sector Share(%) /a
	1980/81	1987/88	1981-1984	1985-1988	
Non-Electric Machinery	46	48	6.3	5.9	19
Electrical Machinery	39	43	10.4	23.9	59
Transport Equipment	15	9	7.1	6.9	36
TOTAL	100	100	8.0	13.1	37
as % of Manufacturing Sector	12.5	10.6	5.7	9.0	

/a In 1984/85.

Growth of the capital goods industry accelerated in the late 1980s faster than that of the overall manufacturing due primarily to rapid growth in the electrical machinery sector, especially electronics (computers, telecommunications equipment). Growth decelerated in the more traditional sectors of non-electrical machinery and transport equipment.

64. Role of Public Sector. About 40 central government public enterprises (CPEs) have been operating in capital goods industries, where they have played

a preeminent role (particularly in electrical machinery). Most CPEs have been in competition with their private counterparts, except in a few capital-intensive products (power generators and turbines, shipbuilding, large telephone exchanges).

65. CPEs have been markedly different from the private firms in following respects:

(a) CPEs absorb a large share of the sector's investments (10-12% above their output share), due to their higher capital intensity;

(b) labor productivity is higher in CPEs, however, both wages and labor cost per unit of output is also higher; and

(c) CPEs have been reputed for poor management of their inventories. This, combined with their higher labor costs, has eroded the CPEs' profitability well below that of private firms.

66. CPEs can be divided into two groups. First is the CPEs that were set up by the Government. Second is the sick private firms that have been taken over by the Government. Some 20 CPEs (half of which are "taken over" firms) have been incurring cash losses (before depreciation), which are met by Government advances and subsidies. There has been no cash-losing CPE in the electrical machinery subsector. The cash-losing CPEs represented about 20% of CPEs output, and the Government subsidies and advances represented between 20 and 25% of the output of cash-losing CPEs. The profitability of public and private firms is presented in Table 16:

TABLE 16: PROFIT RATE IN CAPITAL GOODS INDUSTRIES in 1984/85
(% Of Output)

	Electrical Machinery	Electrical Machinery	Transport Equipment	Non-Total Capital Goods
CPEs	-0.1	8.1	-4.1	-3.2
Taken-Over Firms	-2.7	2.9	-12.7	-7.7
Others (Private)	7.9	19.6	-0.7	10.4
Overall	6.4	12.7	-1.9	6.4

Profitability Trends

67. Despite the low profitability of the CPEs, capital goods industries as a whole have had higher profitability than the manufacturing sector as a whole. The profitability ratios for capital goods industries are presented in Table 17.

TABLE 17: INDEX OF RELATIVE PROFITABILITY OF CAPITAL GOODS INDUSTRIES /a

		1980/81	1982/83	1984/85	1985/86	1987/88
RBI Survey:	Gross Profit to Net Assets	n.a.	1.31	1.08	0.88	1.30
	Net Profit to Net Worth	n.a.	1.36	1.04	0.97	1.61
CMIE Survey: (Private Sector):						
- All Capital Goods:						
	Profit to Sales	1.59	1.56	0.94	0.92	1.27
	Net Profit to Net Worth	1.76	1.65	0.63	0.71	1.19
- Electrical Machinery:						
	Profit to Sales	1.66	1.26	0.80	0.61	1.20

/a Ratio of capital goods industries profit rate to average profit rate in other manufacturing industries.

68. The decline in relative profitability in 1984/85 and 1985/86 was due to a drastic reduction in machinery tariffs to 45% and 55% respectively. These tariffs were increased to 90% in 1987/88. However, even with these drastic tariff reductions, the profitability of capital goods only declined to about the manufacturing industry average. Since then, further real devaluation and tariff increases have increased the profitability of domestic capital goods producers above the overall manufacturing industry average.

69. Protection and Trade. QRs on capital goods appear to have been significantly liberalized during the 1980s. More than 1,000 items have been put on the OGL list. However, the industry is still highly protected. First, most of these OGL items represent products not manufactured locally, and OGL imports represented only about 30% of total capital goods imports in 1987/88. Second, most imports of capital goods continue to require the clearance of the Capital Goods Committee. Third, the increasingly high tariffs levied on imported capital goods (official tariffs in 1987/88 averaged 90%, and actual collection rates averaged 62.5%) have successfully substituted for the

reduction in QRs in ensuring that domestic production would supply an increasing share of total demand for capital goods. Table 18 presents the general trends in foreign trade for capital goods.

TABLE 18: TRENDS IN FOREIGN TRADE OF CAPITAL GOODS (%)

	1973/74	1978/79	1980/81	1984/85	1986/87	1987/88
CIF Imports as % GFCF in Machinery	---	---	14.4	13.3	18.6	16.6
Duties as % Imports	37.4	49.4	49.1	75.2	59.8	65.4
Imports as % Output	35.9	17.1	17.4	20.5	---	24.9
Exports as % Output	5.9	6.2	4.4	3.8	---	2.8
Excise as % Output	1.5	3.2	---	---	---	7.4
Distribution of Imports by Regime:						
- OGL						27.0
- Limited Permissible						21.0
- Restricted						52.0

70. Table 19 shows the trends in foreign trade for disaggregated components of capital goods. The table shows that the structure of trade in 1978/79 indicated the beginning of specialization along the lines of comparative advantage and technological achievement. For example, import and export shares were respectively 43% and 13% for machine tools and 82% and 15% for general electrical machinery. In these two groups, India was importing what it could not produce adequately, and was exporting products where it had a comparative advantage. In most countries with developed capital goods industries, shares of both imports and exports are very large. India in 1978/79 was closer to these countries. However, this tentative and partial specialization disappeared during the 1980s as the result of policies for increased self-sufficiency which lowered not only imports but also exports.

TABLE 19: PATTERN OF EXTERNAL TRADE FOR CAPITAL GOODS
(as % of Domestic Output)

	1978/79		1980/81		1984/85		1987/88	
	Import	Export	Import	Export	Import	Export	Import	Export
Non-Electrical Machin.	27.5	6.2	30.3	5.9	34.2	5.6	22.3	3.9
Machine-Tools	43.2	13.3	35.8	8.4	28.2	4.0	17.5	5.8
Electrical Machinery	9.4	6.3	4.5	2.1	6.9	1.8	7.1	1.2
General Machinery	81.7	14.8	44.4	0	25.6	0	31.1	5.5
Transport Equipment	3.7	1.6	8.6	2.8	6.5	1.0	12.8	1.2
TOTAL Capital Goods	17.1	5.4	17.4	4.0	20.5	3.6	14.9/a	2.5

/a Excluding Project Imports. If included, this ratio would increase to 24.9%.

In conclusion, India increased its self-reliance in capital goods by increasing its protection, but it lost the advantages of specialization and most of its export potential.

71. Nominal and Effective Protection. Price comparisons (NPRs) for capital goods and machinery indicate that the tariff levels exceed what would be required to provide protection to the domestic industry.17/ Tables 20 and 21 show the nominal protection rates for a sample of 60 capital goods.

TABLE 20: NOMINAL PROTECTION RATES (NPRs) FOR CAPITAL GOODS/a

Product Group	% Sample	Overall	1989	1987
Non-Electrical Machinery	54	180	197	172
Machine-Tools	24	157		
Electrical Industrial Machinery	14	135		
Electrical Cables/Wires	3	120		
Small Telecommunications Equip	5	121		
Overall (#:60 NPRs)	100	163		

/a Plain averages.

17/ The samples are biased towards non-electrical machinery.

These tables also show the wide variation in nominal and effective protection rates. The range and medians of nominal protection for output and inputs and of effective protection are given below. The median NPR for output is 40%, and the median NPR for inputs is 70%. Effective protection ranges from -20% to 585%, with the median at about 30%.

TABLE 21: RANGE AND MEDIAN FOR NOMINAL AND EFFECTIVE PROTECTION (NPRs and EPRs, in %)

		Range	Median
Nominal Protection:	Output	13 to 317	40
	Input	25 to 226	70
Effective Protection		-20 to 585	30

The distribution of output nominal protection is largely bimodal, with its peak in the 30-50% range. By contrast, the distribution of effective protection rates is unimodal, with a first peak in the [-10,+10%] range and a second peak in the [30,50%] range. This suggests the presence of at least two different groups of capital goods industries, a first group receiving low or negative protection and a second group receiving effective protection similar to other manufacturing subsectors.

72. Within each product-group, variations in nominal and effective protection can be wide as well. In the machine-tools subsector, for example, there are two district groups. Standard lathes and machine-tools have output price ratios (NPRs) ranging typically between 1.15 and 1.50, with the median at 1.30. High-technology products, such as CNC machine-tools and NC machining centers, have domestic prices which are 100% or more above international prices (NPR above 2.0).

73. There appears also to be some positive correlation between the level of technological complexity and the degree of inefficiency as measured by the Effective Protection rates (EPR), at least for those product-groups where transfers of technology and foreign collaborations for technology up-dating have been low. When moving from steel structures (simple technology) to platework structures (pressure vessels, exchangers) and to mining equipment,

the EPR ranges increase by 30-40 percentage points. On the other hand, EPRs appear to decline when moving to product-groups requiring higher levels of technology such as machine-tools and heavy electrical power machinery. These latter two subsectors have been among those which Government policies have allowed to maintain an open access to foreign technologies and collaborations for continuous modernization and technology updating.

TABLE 22: RANGE OF EFFECTIVE PROTECTION, BY TECHNOLOGICAL LEVEL

Product-Group	Range of EPR (%)
Platework	-10 to +77
Mining Equipment	+33 to +135
Machine-Tools	-20 to +83
Electrical Machinery	0 to +32

A few products with low EPRs, such as steel structures or standard machine-tools of stable technology, are produced at competitive prices (output NPRs range between 1 and 1.10), and are exported whenever inputs are supplied at world prices.

74. Firm Efficiency and Effective Support Rates. A significant share of the products analyzed above are produced by CPEs from the non-electrical machinery subsector. Some of these CPEs have in fact incurred chronic cash losses (before depreciation) covered by Government advances and subsidies, which have permitted them to sell at market prices (dictated by the competitive domestic market) which are below their short-term marginal costs (STMCs). For this reason, effective protection rates do not provide a representative measure of their operating efficiency.18/ A more adequate measure of efficiency is provided by effective support rates (ESRs), which add to the value added permitted by the trade regime the amount of subsidies supporting the

18/ Another reason why EPRs would not adequately measure the operating efficiency would be the presence of high profit margins reflecting monopoly rents or other privileged positions. None of the analyzed enterprises has such profit margins.

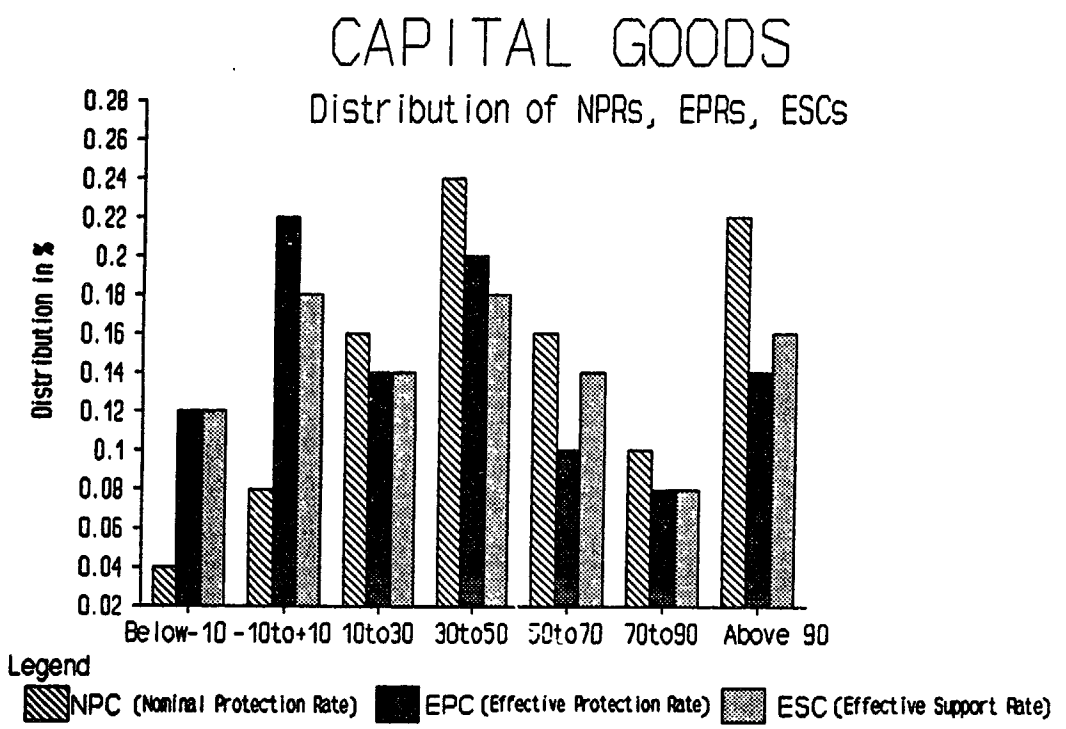
production of the capital goods.19/ Consequently, the data above have been adjusted to reflect more adequately the efficiency of the firms operating under the common incentive framework of the capital goods sector. EPRs of cash-loss CPEs were converted into ESRs by incorporating an estimated cash-loss subsidy.20/

75. The results are summarized by the distributions of ESRs in Figure 1. The median effective rate of support is about 40%. Again, the distribution of ESRs is bimodal, with a first peak in the -10, +10% range and another peak in the 30-50% range. However, part of the distribution has shifted to the right towards higher ESRs.

19/ By definition, ESR = (value added in domestic prices plus subsidies)/value added in international prices minus 1. Given that some CPES of the sample have been incurring chronic losses and that the policy of the Government has been to keep CPEs operating despite their losses, the subsidies have de facto represented additional incentive. Adding cash-loss subsidies to output value and to value added at domestic prices permits to compute nominal support rates (NSRs) and ESRs based on short-term marginal costs. A more correct methodology would be to estimate ESRs based on long-term marginal costs by adding to cash-loss subsidies the opportunity costs of the capital employed.

20/ Ideally, the ESR should incorporate a cash-loss subsidy specific to each product. Such product-specific subsidies are not available. Assuming that selected products are representative of the enterprises' product-mix and operating efficiency, the average cash-loss to output ratio for the whole enterprises was taken as a first proxy.

FIG. 1



76. Structure of Production Costs, by Enterprise Groups The analyses made above indicate that the capital goods sector, or at least its largest subsector of non-electrical machinery, comprises three broad groups of enterprises:

(a) enterprises receiving incentives for operating along international standards of practice, with EPRs in the [-10%, +10%] range;

(b) more protected enterprises, enjoying EPRs in the [30%, 50%] range; and

(c) CPEs requiring cash subsidies for survival and operating with high effective support rates.

The basic characteristics of the three groups of enterprises, as summarized in Tables 23 and 24, indicate that each of these groups is fairly homogeneous (particularly the first two groups) and has its own distinct parameters.

TABLE 23: BASIC PARAMETERS OF CAPITAL GOODS ENTERPRISES

		NPC			Support Coefficients		VA/Output (%)	
		Input	Output	EPC	Nominal	Effective	Int. Prices	Dom. Prices
t Group:	Average	1.69	1.31	1.01	n.a.		56	43
	Median	1.65	1.33	1.02	n.a.		55	42
2nd Group	Average	1.79	1.58	1.40	n.a.		55	58
	Median	1.76	1.56	1.42	n.a.		56	51
d Group	Average	1.77	1.56	1.61	1.89	2.43	46	41
	Median	1.76	1.47	1.22	1.72	1.62	40	39

TABLE 24: STRUCTURE OF VALUE ADDED IN CAPITAL GOODS ENTERPRISES
(in % of Output Value in Domestic Prices)

Components	Enterprise Groups		
	First	Second	Third/a
Labor	15.0	20.0	29.0
Depreciation	5.0	4.0	4.0
Interest	6.5	8.5	13.5

/a Average structure for cash-losing CPEs in Capital Goods.

77. The combination of these various sets of parameters leads to the following three basic enterprise models which represent reasonably well the three groups identified earlier.

TABLE 25: PRODUCTION COST STRUCTURES OF CAPITAL GOODS ENTERPRISES
(in % of Output in World Prices)

Enterprise	1st Group/a			2nd Group/a			3rd Group/a		
	I.P.	D.P.	NPC/EPC	I.P.	D.P.	NPC/EPC	I.P.	D.P.	NPC/EPC
Output	100	131	1.31	100	157	1.57	100	150	1.50
Inputs: Materials	35	63	1.80	33	64	1.95	48.5	85	1.75
Services	10	13	1.30	45	16	1.30	11.5	15	1.30
Total Inputs	45	76	1.70	45	80	1.78	60	100	1.75
Value Added	55	55.0	1.00	55	77.0	1.40	40	50.0	1.25
Labor		19.5			31.5			43.5	
Interest		8.5			13.5			20.5	
Depreciation		6.5			6.5			6.0	
Pre-Tax Profit		20.5			25.5			-20.0	
(Cash-Flow Subsidy)		N.A.			N.A.			(14.0)	

/a NPCs for inputs and outputs and EPCs for value added.
Notes: I.P.: in International Prices, D.P.: in Domestic Prices.

Table 25 shows the stylized cost structures of the three groups of enterprises in both domestic and international prices. The major difference between the first group of efficient firms and the other two groups is in labor and interest costs. Labor cost difference is partially caused by inefficient technologies and partially (especially in CPEs) by overstaffing. Higher interest costs, especially in the third group, reflect the accumulated losses of these enterprises.

78. Impact of Trade Reform on Profitability of Capital Goods Industries. The liberalization of capital goods imports and the progressive dismantling of the uneven tariff structure will have different impacts on the viability and profitability of the sector's enterprises, depending on the type of enterprises and their present level of efficiency. The impact of trade liberalization is dictated primarily by: (a) the level of effective protection/support enjoyed by the enterprise, and (b) the breakdown of the enterprise's value added between different cost components (labor, interest, depreciation) and gross profit.

79. Assuming a general trade reform, i.e., removal of QRs and progressive reduction of tariffs to free-trade over five periods (which could be five years), the nominal protection for capital goods and the resulting output

price ratios which the three enterprise groups would have to compete with, are given in Table 26.21/

TABLE 26: EVOLUTION OF CAPITAL GOODS RELATIVE PRICES UNDER FREE-TRADE REGIME

	Present	Year 1	Year 2	Year 3	Year 4	Year 5
Average Actual Tariff (%)	75	50	37.5	25	12.5	0
Relative Output Prices:						
1st Group	1.31	1.31	1.25	1.25	1.125	1.00
2nd Group	1.57	1.50	1.375	1.25	1.125	1.00
3rd Group	1.50	1.50	1.375	1.25	1.125	1.00

It is assumed that: (i) the average tariffs actually collected on imported capital goods would be unified and, after an initial reduction of 25 percentage points in the first year, reduced over 5 years to zero; and (ii) that the present conditions of local competition would continue to prevail, thus keeping current prices at their present levels until the lowered tariffs start "biting" and force enterprises to adjust prices downwards to international levels. It is also assumed that protective tariffs on materials and other physical inputs would, under the general tariff reform, be gradually reduced to zero, and reduction on input costs would begin in the first year of reform program. Table 27 presents the likely outcomes of the reform program, on the three groups of enterprises, without any enterprise structuring or efficiency improvements.

21/ The sequencing presented here is purely illustrative. It is possible to design alternative phasing options.

TABLE 27: TRADE REFORM SCENARIO FOR THREE GROUPS OF CAPITAL GOODS PRODUCTS
(in % of World Output Prices)

	Present	Year 1	Year 2	Year 3	Year 4	Year 5
GROUP 1						
Output	131	131	131	125	112.5	100
Inputs: Materials	63	57.5	52	46.5	41	35
Services	13	13	13	13	13	13
Total	76	70.5	65	59.5	54	48
Value Added	55	60.5	66	65.5	58.5	52
Labor	19.5	----------Unchanged----------				
Interest	8.5	----------Unchanged----------				
Depreciation	6.5	----------Unchanged----------				
Pre-Tax Profit	20.5	26.0	31.5	31.0	24.0	17.5
(as % of Output)	15.6	19.8	24.0	24.8	21.3	17.5
GROUP 2						
Output	157	150	137.5	125	112.5	100
Inputs: Materials	64	58	52	46	40	33
Services	16	16	16	16	16	16
Total	80	74	68	62	56	49
Value Added	77	76	69.5	63	56.5	51
Labor	31.5	----------Unchanged----------				
Interest	13.5	----------Unchanged----------				
Depreciation	6.5	----------Unchanged----------				
Pre-Tax Profit	25.5	24.5	18.0	11.5	5.0	-0.5
(as % of Output)	16.2	16.3	13.1	9.2	4.4	-0.5
GROUP 3						
Output	150	150	137.5	125	112.5	100
Inputs: Materials	85	77.5	70	62.5	55	48.5
Services	15	15	15	15	15	15
Total	100	92.5	85	77.5	70	63.5
Value Added	50	57.5	52.5	47.5	42.5	36.5
Labor	43.5	----------Unchanged----------				
Interest	20.5	----------Unchanged----------				
Depreciation	6	----------Unchanged----------				
Pre-Tax Profit	-20.0	-12.5	-17.5	-22.5	-27.5	-33.5
Memo Item: Cash-Flow Subsidy	(14.0)	(6.5)	(11.5)	(16.5)	(21.5)	(27.5)

80. Due to the one-two year time lag between the binding impact of the respective tariff reductions on output and inputs, the profitability of "unprotected" firms (1st Group) increases during the first three years before reaching a level that is higher than they currently enjoy. Similarly, the

cash-losing enterprises (3rd Group) see a temporary decrease in their losses during the first two years before their losses and the corresponding subsidies increase markedly; they should use this two-year respite for restructuring purposes. The second group of enterprises has its high profitability eaten up as of the first year by the lowering of its output protection, down to a slightly negative profitability. The following table summarizes the results of Table 27.

TABLE 28: PROFITABILITY OF CAPITAL GOODS ENTERPRISES UNDER TRADE REFORM
(Pre-Tax Profit to Output Value, in %)

	Present	Year 1	Year 2	Year 3	Year 4	Year 5
1st Group	15.6	19.8	24.0	24.8	21.3	17.5
2nd Group	16.2	16.3	13.1	9.2	4.4	-0.5
3rd Group	-13.3	-8.3	-12.7	-18.0	-24.4	-33.5
(Cash Subsidy)	(9.3)	(4.3)	(8.4)	(13.2)	(19.1)	(27.5)

81. Restructuring Scenarios for Maintained Production22/ The existing enterprises of the 2nd and 3rd groups would have to undertake restructuring measures, focused primarily on their labor costs and on and interest charges, if they are to restore their profitability rates (2nd group) or at least operate without Government cash subsidies (3rd group). Achieving a profit rate of 17.5% in the 2nd group, (the profitability level of the 1st group) would require cutting down primarily on labor costs. In order to alleviate somewhat the socially painful labor adjustment, interest charges could also be reduced to a level similar to that in the 1st group enterprises. The resulting production cost structure would evolve as follows:

22/ The following paragraphs are considering restructuring scenarios in those cases where separate enterprise-specific diagnoses have concluded about the economic undesirability to expand or diversify the production capacity of the enterprise under review. In many cases, however, the diagnosis would be to expand some of the existing production lines and/or open new ones, with additional investments to be carefully identified and assessed by enterprise restructuring programs. Such cases of expanded/diversified production fall outside the purpose of this note, which addresses essentially the case of enterprises which are in a position to consider only two options: (a) How to keep their existing production lines operating profitably under the new protection framework, without substantial new investments; (b) or close down.

TABLE 29: RESTRUCTURING SCENARIO FOR EXISTING ENTERPRISES OF THE 2ND GROUP
(in % of World Output Price)

	Present	Year 1	Year 2	Year 3	Year 4	Year 5
Value Added	77	76	69.5	63	56.5	51
Labor	31.5	31.5	28.7	24.9	21.0	19.5
Depreciation	6.5	----------Unchanged----------				
Interest	13.5	13.5	11.5	10.5	9.5	8.5
Pre-Tax Profit	25.5	24.5	22.8	21.1	19.5	17.5
(as% Output Value)	16.2	16.3	16.6	16.9	17.2	17.5

Interest charges need be reduced by about one-third, and labor costs would have to be cut by more than one-third (about 38% of their present level). The adjustment costs for these enterprises would be substantial, but manageable.

82. The cash-losing CPEs constitute a more difficult case for restructuring. Firstly, an in-depth and targeted approach should be taken, whereby a comprehensive diagnosis of each enterprise/plant situation and potential23/ should be carried out and lead to enterprise-specific restructuring plans considering three alternative decisions:

(a) invest for long-term rehabilitation and/or capacity expansion;

(b) keep open and operate in the short-run with working capital; or

(c) disinvest/close unproductive assets through simplified bankruptcy and exit procedures.

Those units assessed to remain potentially uneconomic should exit. Restructuring plans for the other units would be developed, which would involve strategic decisions on trimming unprofitable product lines, physical and financial restructuring, labor shedding and improved management.

23/ The diagnosis and restructuring plans should assess over the short and medium-term each enterprise's situation and prospect regarding markets, competitiveness, product-mix, organizational and corporate structure, labor force, investments, financial structure, and financial and economic viability.

83. The minimal objective of achieving a zero profit in those units to be kept open for continuing operation (without major new investments) would require:

(i) financial restructuring at the outset with a view to reduce financial charges to a level close to that in other enterprises, primarily through partial write-off of the debt owned to the Government; and

(ii) substantial reduction of labor costs through early retirement schemes and other means of shedding excess labor.

The restructuring scenario could be as follows:

TABLE 30: RESTRUCTURING SCENARIO FOR CASH-LOSING ENTERPRISES (3rd GROUP)
(as % of World Output Price)

	Present	Year 1	Year 2	Year 3	Year 4	Year 5
Value Added	50	57.5	52.5	47.5	42.5	36.5
Depreciation	6	----------Unchanged----------				
Interest	20.5	15.5	14.0	12.5	11.0	9.5
Labor	43.5	39.0	34.5	30.0	25.5	21.0
Pre-Tax Profit	-20.0	-3.0	-2.0	-1.0	0	0
Cash Subsidy	14.0	--	--	--	--	--
Cash-Flow	-14.0	3.0	4.0	5.0	6.0	6.0

Interest charges would be reduced initially by one-fourth (through a first debt write-off) and subsequently by another one-third. Labor costs would have to be reduced by more than half to about 48% of their present level. The restructuring programs would have to balance and arbitrate between debt write-off and labor shedding: the more debt written-off, the less labor shedding required.

84. These results clearly indicate that significant restructuring is necessary to achieve a competitive and efficient capital goods industry. The scenarios developed here have focused primarily on the negative effects of trade reform and on enterprises that are likely to be negatively affected. It is equally likely that most of the efficient enterprises would expand their markets, both internal and external. Furthermore, domestic demand for capital goods would expand with the decrease in its relative price. Real devaluations

that are likely to accompany the proposed reforms would also minimize some of the adjustment costs. Therefore, the net effects are likely to be less negative than outlined above.

E. CONCLUSIONS

85. The policy of high taxes and tariffs on capital goods and key intermediates have escalated the costs of production in India across a wide spectrum of industries. At the same time, this structure of protection has led to much lower net average protection to the industrial sector as a whole. However, it has created tremendous unplanned variance in net EPRs where half the industry receives highly positive while the other half receives highly negative net EPRs. The policy of keeping landed price of imports (especially for intermediates) higher than domestic prices also has induced domestic firms to enter these areas irrespective of considerations of comparative advantage and international competitiveness. These uneconomic investments in turn generate further tariff escalations and higher costs of production for all downstream industries. On the other hand, the deregulation of industry through excess entry and creation of supply surpluses has tended to lower the EPRs. The deregulation seems to have greater impact primarily on some consumer and capital goods. However, in intermediates and other capital goods, domestic competition does not seem to have achieved the same results.24/ First, India is still a large net importer of these products and will be so for some time to come. Second, rapid growth in manufacturing (due to deregulation and excessive domestic demand) have led to growing imports despite rapid growth of domestic supply of intermediates. Third, these sectors are highly capital intensive which makes entry more difficult and many of these products are licenced tightly and/or reserved for public sector. What is needed in these sectors is more import competition and across the board tariff and tax reductions; which would lower the costs of production for all downstream industries.

24/ Recent productivity growth studies have corroborated this observation. According to these estimates, total factor productivity (TFP) growth has increased dramatically during the 1980s. However, the TFP growth has been lowest for intermediates; 1.4% p.a. for intermediate goods versus about 6% p.a. for consumer goods and 3.4% for capital goods (Ahluwalia, 1991).

86. Import substitution in intermediates has been complicated by the response of Government to international price fluctuations. By the nature of world markets, international prices of intermediates such as steel or chemicals, are highly cyclical. In the name of price stability, the Indian Government adjusts tariffs and QRs to maintain the high protection in the economy. When international prices rise, the tariffs are sometimes maintained for revenue purposes; leading to the ratcheting up of tariffs. On the other hand, when world prices decline, tariffs are raised. This leaves the exporters (which are mostly downstream industries) with much higher costs than their foreign competitors that have access to cheaper raw materials.21/ This is what happened to engineering industries in the early 1980s when world steel prices collapsed. More recently, decline in international aluminum prices have led to a similar adjustment where aluminum was moved from OGL to the Restricted list; leading exporters of aluminum products to ask for IPRS benefits. A similar danger awaits users of petrochemical products if the existing high world prices decline. It is very important that domestic producers of key intermediates be induced to adjust to international price fluctuations to maintain the competitiveness of the rest of the economy.

87. It also appears literally impossible to bring Indian prices closer to world levels without substantially lowering the costs of investment. Most of Indian industries are in need of modernization and would need significant investments to expand exports and meet growing domestic demand. Investments made with existing high capital costs will permanently handicap these industries relative to their competitors.

88. Given the magnitude and variance of effective protection rates it is clear that anything short of low and uniform tariffs and complete elimination of QRs would not bring transparency to the incentive regime faced by the industrial sector. The evidence suggests that there is ample scope for significant reductions in tariffs and QRs and most industries can coexist with much less protection than currently given. The elimination of all surcharges on inputs (tariffs on imported inputs, price differentials on local ones, non-deductible excise taxes) indicates that, even without correcting for the

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21/ In theory, export compensation systems should automatically adjust for price differentials, but this rarely happens in practice.

effects of high investment costs, most projects (including the import-substitution ones) would earn from the current international prices a positive profit margin on their marginal as well as full production costs. The proportion of projects with such a positive profit margin would triple from 20% to 63%. Among the import-substituting projects which have no prospects nor potential for export under the present trade regime, this proportion would increase dramatically from 0 to 50% if they could procure their inputs at international prices (Ettori, 1990).

89. The lower tariffs would fulfill more effectively their primary purpose of providing protection and incentive signals, and disregard their secondary function of public revenue generation which in India has become predominant and introduced pervasive distortions in prices and incentives. The function of public revenue generation, which is currently another critical issue in India, should be fulfilled by other more efficient and protection-neutral instruments, in particular direct taxation (income tax) and non-tariff indirect taxation (neutral excise taxes, MODVAT, and preferably the consumption VAT).

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